

3.3.1.1 Coldwater Streams

3.3.1.1.1 Community Overview

Coldwater streams are best described as flowing waters with maximum summer water temperatures that are typically below 22 degrees Celsius. The watersheds of these streams are usually less than 100 square miles, and the streams exhibit mean annual flow rates of less than 50 cubic feet per second. Coldwater streams can be found statewide, but they are concentrated in southwestern and parts of central and northern Wisconsin. These communities contain relatively few fish species and are dominated by trout and sculpins. The unglaciated Driftless Area in the state's southwestern corner, exhibits a classically branched stream pattern, and sharper, more eroded terrain. The rest of the state, smoothed by glaciers, has less topographic relief, creating sinuous streams with less average elevation drop.

3.3.1.1.2 Vertebrate Species of Greatest Conservation Need Associated with Coldwater Streams

Fifteen vertebrate Species of Greatest Conservation Need were identified as moderately or significantly associated with coldwater streams (Table 3-45).

Table 3-45. Vertebrate Species of Greatest Conservation Need that are (or historically were) moderately or significantly associated with coldwater streams.

<i>Species Significantly Associated with Coldwater Streams</i>
Birds
Louisiana Waterthrush
Herptiles
Blanchard's Cricket Frog
Pickerel Frog
Wood Turtle
Mammals
Water Shrew
Northern Long-eared Bat
Silver-haired Bat
Eastern Red Bat
Hoary Bat
<i>Species Moderately Associated with Coldwater Streams</i>
Birds
Solitary Sandpiper
Fish
Redside Dace
Herptiles
Four-toed Salamander
Mudpuppy
Mink Frog
Blanding's Turtle


In order to provide a framework for decision-makers to set priorities for conservation actions, the species identified in Table 3-45 were subject to further analysis. The additional analysis identified the best opportunities, by Ecological Landscape, for protection, restoration, and/or management of both coldwater streams and associated vertebrate Species of Greatest Conservation Need. The steps of this analysis were:


- Each species was examined relative to its probability of occurrence in each of the 16 Ecological Landscapes in Wisconsin. This information was then cross-referenced with the opportunity for protection, restoration, and/or management of coldwater streams in each of the Ecological Landscapes (Tables 3-46 and 3-47).
- Using the analysis described above, a species was further selected if it had both a significant association with coldwater streams and a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of coldwater streams. These species are shown in Figure 3-1.


Table 3-46. Vertebrate Species of Greatest Conservation Need that are (or historically were) *significantly* associated with coldwater streams and their association with Ecological Landscapes that support coldwater streams.

Coldwater Streams	Birds (1)*		Herptiles(3)		Mammals (5)				
	Louisiana Waterthrush	Blanchard's Cricket Frog	Pickereel Frog	Wood Turtle	Water Shrew	Northern Long-eared Bat	Silver-haired Bat	Eastern Red Bat	Hoary Bat
MAJOR									
Central Sand Hills									
Forest Transition									
North Central Forest									
Northeast Sands									
Northwest Sands									
Superior Coastal Plain									
Western Coulee and Ridges									
Western Prairie									
IMPORTANT									
Central Sand Plains									
Northern Highland									
Southwest Savanna									
PRESENT (MINOR)									
Central Lake Michigan Coastal									
Northern Lake Michigan Coastal									
Northwest Lowlands									
Southeast Glacial Plains									

Color Key

 = HIGH probability the species occurs in this Ecological Landscape

 = MODERATE probability the species occurs in this Ecological Landscape

 = LOW or NO probability the species occurs in this Ecological Landscape

* The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.

Table 3-43. Vertebrate Species of Greatest Conservation Need that are (or historically were) *moderately* associated with coldwater streams and their association with Ecological Landscapes that support coldwater streams.

Coldwater Streams	<div> <div>Birds (1)*</div> <div>Fish (1)</div> <div>Herptiles (4)</div> </div>					
	Solitary Sandpiper	Redside Dace	Four-toed Salamander	Mudpuppy	Mink Frog	Blanding's Turtle
MAJOR						
Central Sand Hills						
Forest Transition						
North Central Forest						
Northeast Sands						
Northwest Sands						
Superior Coastal Plain						
Western Coulee and Ridges						
Western Prairie						
IMPORTANT						
Central Sand Plains						
Northern Highland						
Southwest Savanna						
PRESENT (MINOR)						
Central Lake Michigan Coastal						
Northern Lake Michigan Coastal						
Northwest Lowlands						
Southeast Glacial Plains						

Color Key

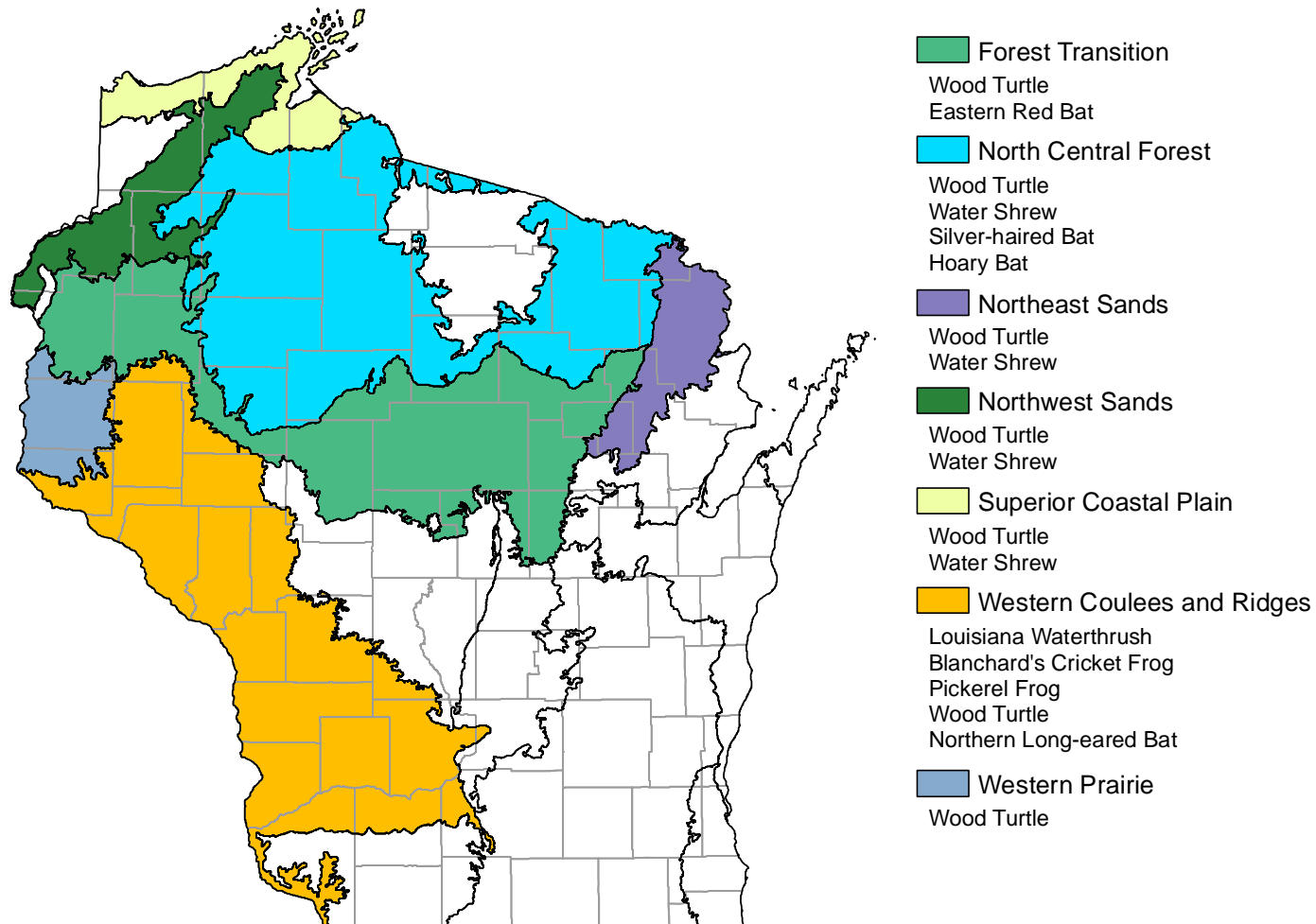
= HIGH probability the species occurs in this Ecological Landscape

= MODERATE probability the species occurs in this Ecological Landscape

= LOW or NO probability the species occurs in this Ecological Landscape

* The number shown in parentheses is the number of Species of Greatest Conservation Need from a particular taxa group that are included in the table. Taxa groups that are not shown did not have any Species of Greatest Conservation Need that met the criteria necessary for inclusion in this table.

Figure 3-1. Vertebrate Species of Greatest Conservation Need that have both a significant association with coldwater streams and a high probability of occurring in an Ecological Landscape(s) that represents a major opportunity for protection, restoration and/or management of coldwater streams.



3.3.1.1.3 Threats and Priority Conservation Actions for Coldwater Streams

The following list of threats and priority conservation actions were identified for coldwater streams in Wisconsin. The threats and priority conservation actions described below apply to all of the Ecological Landscapes in Tables 3-46 and 3-47 unless otherwise indicated.

Threats and Issues

- Non-point source pollution resulting from urban and agricultural runoff within the watershed is leading to habitat degradation and loss.
- Inadequate storage of animal waste and winter spreading or other inappropriate spreading of liquid manure are not common, but can have far-reaching negative impacts when waste reaches streams. Coldwater species in impacted streams can take 6 to 8 years to recover, and will only recover if populations survive in other reaches or tributaries.
- In some situations, groundwater pumping is causing declines in stream flow and increases in water temperature.
- Streams in deforested areas of steeper topography have been degraded by serious erosion and gullyng.
- Reaches of some streams have been identified as still being impacted by significant masses of tree bark and other remnants from historic logging practices, which cover the native stream bottom material and eliminate or alter benthic substrates and habitats.
- Global climate change may lead to further declines in flow and increases in water temperature.

Priority Conservation Actions

- Improve watershed and riparian land-use decisions and management practices to reduce non-point source pollution.
- Restrict excessive groundwater pumping and protect aquifers.
- Continue restoration of stream habitat and morphology, focusing on areas where land use within the watershed and other factors suggest the restoration may be successful over the long term.
- Reduce greenhouse gas emissions to slow rate of global climate change.